magicJack VoIP E911
Automatic Location Information (“ALI”) *Technology Solution*

Presentation of YMax Corporation – May 11, 2009
PS Docket No. 07-114, WC Docket No. 05-196,
CC Docket No. 94-102

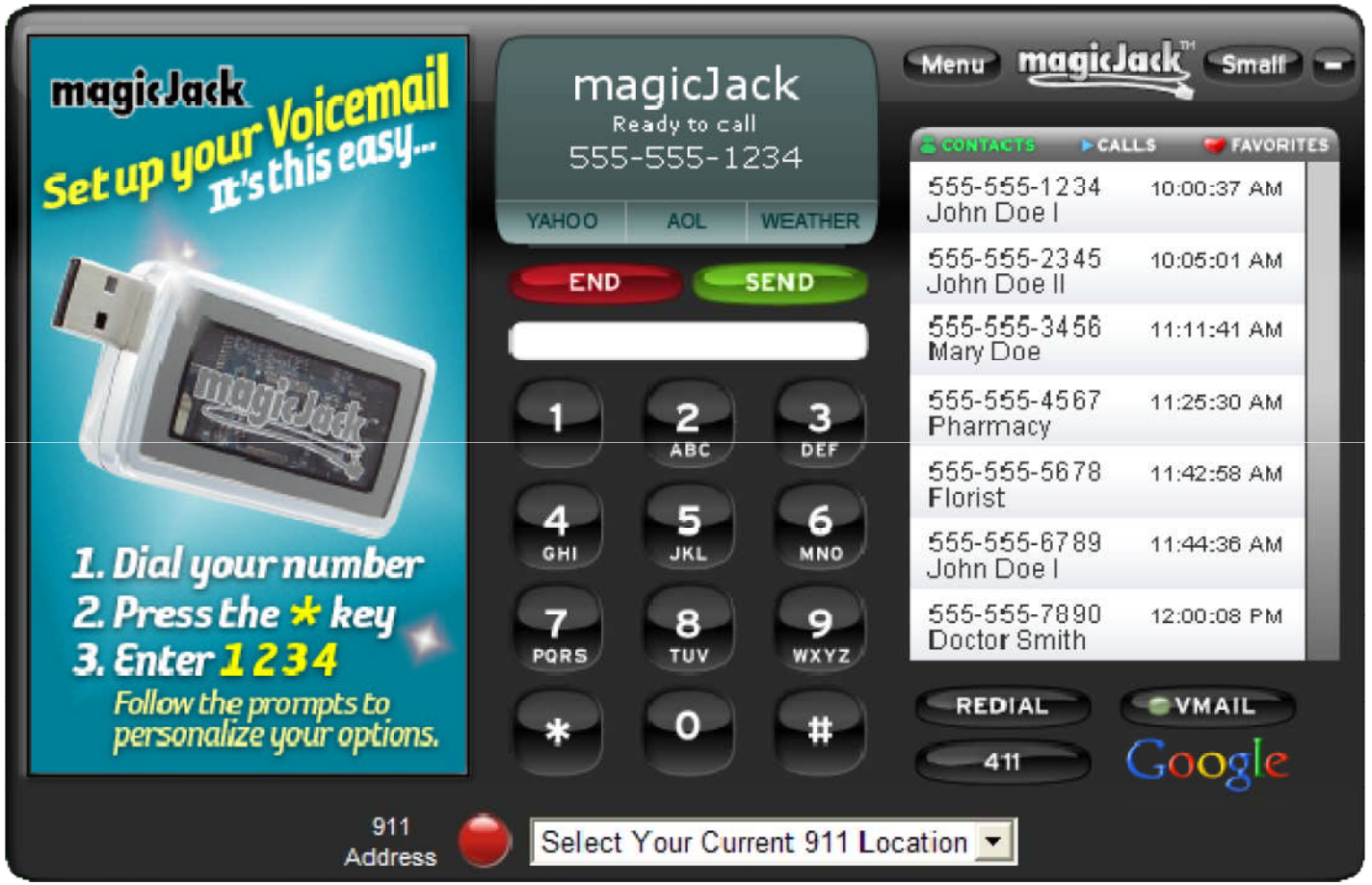
magicJack® Device and VoIP Services

- Functionality of magicJack:

- Features included at no extra charge:
  - Free local and long distance calls to anywhere in U.S. or Canada;
  - Can obtain phone number and receive calls;
  - Voicemail, call waiting, directory assistance, caller ID, and more.

magicJack™

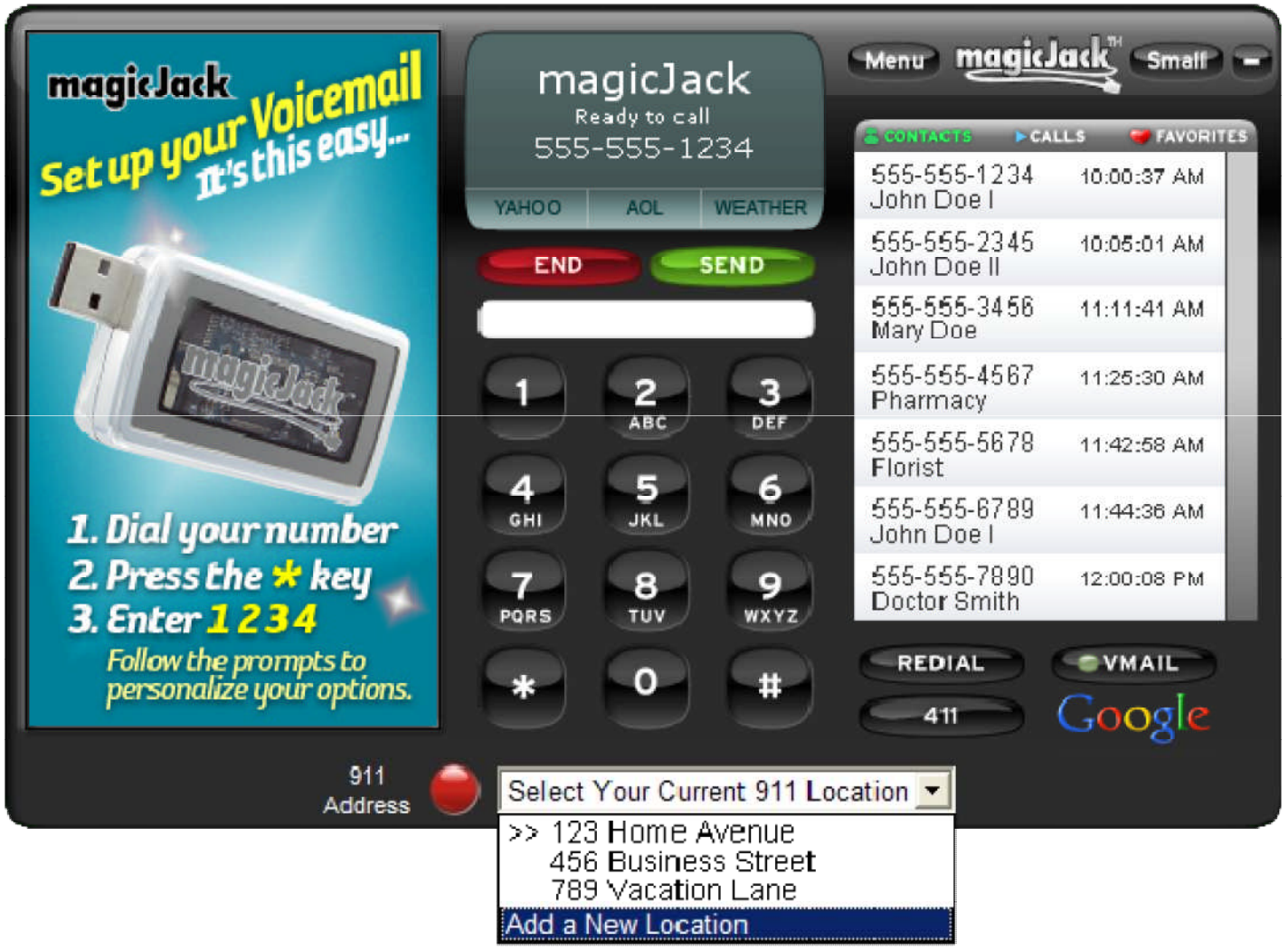
magicJack Softphone



Initial E911 Capabilities

- magicJack provides E911 today through a location registration system.
- Multiple locations can be pre-registered.
- Current location can be selected or a new location can be added simply and efficiently.

Easy Updating of Registered Location



Questions Posed in the June 2007 *NPRM*

- "[W]hether and to what extent providers of interconnected VoIP services should be required to provide ALI."
- "[W]hether and to what extent they should be subject to the same location accuracy requirements that apply to certain services provided by circuit-switched CMRS carriers under Section 20.18 of the Commission's rules."
- "[U]pdate the record in the Commission's VoIP 911 proceeding with any new information or arguments they believe to be relevant to the questions raised in the June 2005 *Notice of Proposed Rulemaking* relating to location issues."

Limitations of Existing Technologies for Nomadic VoIP ALI

- Registration and re-registration
  - Will systems recognize movement and prompt for re-registration when keyed to shutdown of the computer (e.g., for laptops with batteries and wireless broadband access, no shutdown is required to move)?
  - Will customers re-register?
  - Will they do so accurately (or even know the address of their new location, e.g., a hotel at an exit on the Interstate; a coffee shop in downtown Chicago)?
  - How long will it take for databases and systems to recognize the new information and adjust the routing of emergency calls and the location information transmitted?

Limitations of Existing Technologies for Nomadic VoIP ALI

- The FCC record to date suggests that other technological solutions to provide automatic location identification have limitations and may not be available for some time.

- Indeed, some commenters say the FCC should do nothing now or for the foreseeable future because no technological solution is possible.

magicJack's ALI Solution

- Incorporation of GSM cellular transceiver in next-generation magicJack device.
  - GSM transceiver will not be involved in VoIP calls made over the broadband connection, unless customer dials 911.
  - magicJack device can scan through all GSM frequencies and obtain information for all GSM transmitters in the area. Based on the tower locations and signal strengths, magicJack can calculate the device location.
    - Soon magicJack will be able to calculate location using both GSM and Wi-Fi, where available, or other signals.

magicJack's ALI Solution

- Upon power-up and periodically thereafter, magicJack device can perform location calculation and comparison to registered locations.
  - If none of the user's registered locations matches within a certain distance, warning will pop up and ask user to update his/her address for 911 purposes.
  - magicJack can send map and calculated location to user to assist with updating of his/her address.

magicJack's ALI Solution

- When a customer dials 911, magicJack device will again perform location calculation and comparison.

- magicJack device allows 911 calls to be routed over either broadband connection or GSM network. For example:

  - If calculated location is in close proximity to user's current registered location, call can be sent via broadband.

  - If calculated location is in close proximity to alternate registered location of user, systems can be updated and call can be sent via broadband.

  - If calculated location differs from all of user's registered locations, call can be sent via GSM network.

  - When a customer dials 911, if there is no internet connection or ALI databases have not yet been updated, call sent via GSM network.

magicJack's ALI Solution

- If 911 call is routed to GSM cellular transceiver:
  - The local CMRS provider will perceive the 911 call from the magicJack device as no different than any other 911 call from a device not registered to one of its customers.
  - CMRS providers are already required to transmit all wireless 911 calls to the appropriate PSAP, even if not from the provider's customer. 47 C.F.R. § 20.18(b).
  - Location of magicJack cellular transceiver can be determined using network-based location technology.
  - Local PSAP will receive the call as non-initialized call with network-based location data.
  - magicJack can supplement this location information with its own calculated location and registered location.

magicJack's ALI Solution

- magicJack device can transmit VoIP call back number.
  - Already provided for 911 calls sent via broadband network.
  - For 911 calls transmitted via cellular network:
    - Current practice for NSI cellular calls allows only 10 digits, with 911 as first three.
    - magicJack can transmit (911) xxx-xxxx where xxx-xxxx is the serial number sent from our device (which is fully programmable by magicJack).
    - magicJack can, e.g., provide online utility to dynamically map 7 digit serial number to standard 10 digit VoIP call back number for caller.
    - Or practice can be changed to allow for transmission of full phone number.

magicJack's ALI Solution

- The technology developed by YMax does not require a magicJack device or even a USB port.
- It can be implemented by building the capability into a laptop, VoIP handset, analog telephone adapter (ATA), etc.
- Prototype is fully functional and has successfully completed test calls to PSAPs.
- Prototype has been successfully demonstrated to representatives of the public safety community and focus group of PSAPs from around the country.

magicJack's ALI Solution

- Development of operational prototype over four years.
- Significant financial investment by YMax.
- Built with the expertise and successful track record in chip and software development of Dr. Sing.

Implementation Issues

- Technological solutions to E911 problem for nomadic VoIP services are subject of pending patent applications.
- YMax is willing to license use of technology on reasonable, non-discriminatory terms and conditions in accordance with FCC's patent policy.
- FCC can help make this a reality and save lives.

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Buy It Here: Check Prices

By Oliver Rist

BOTTOM LINE

So simple it's almost perfect, the magicJack is the best home voice-over-IP gadget I've seen to date. Excellent call quality, a workable set of calling features, and an amazing price make this little box the VoIP wonder to beat.

PROS

Nice price. Good set of calling features. Softphone capability included. Simple enough to be idiot-proof.

CONS

Only one line (and phone number) per magicJack for now. No Linux drivers.

REVIEW

By Oliver Rist

Those commercials advertising cheap voice-over-IP (VoIP) phone rates look appealing, but there's always some fine print: You have to switch cable-TV providers, install a VoIP-smart Internet router, or something. And you end up ticked once a month when the bill from MCI, Verizon, or some other telecom robber baron dips into your wallet. If this sounds like your bio, the YMax magicJack is for you: 2 minutes of setup, voice quality that's almost indistinguishable from a straight analog POTS line, and a cost of just under $20 a year for unlimited nationwide service. When I was testing it in December 2007, the service offered phone numbers in about 90 percent of the country. International calling wasn't available at test time, though it should be in the next few months. Pricing will be determined based upon phone rates at that time, though YMax says its mandate is to make international calling cheaper than any rate you can get with either Skype or Vonage.

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The magicJack device, about the size of a box of Tic Tacs, has a USB plug on one end and an RJ-11 phone jack on the other. I had to connect mine to a Windows PC, but Mac OS X drivers should be ready soon. After USB plug meets USB port, you'll wait a minute or so while the magicJack software gets automatically loaded. Those who already have magicJack will be happy to know that the company says a firmware rev released while I was testing makes the hardware more resilient to problems caused by fluctuating electrical levels in foreign countries. It also installs hardware echo control, which taxes your CPU about 50 percent less than before.

SLIDESHOW (11)

Slideshow | All Shots

If this is your first time using the device, you'll have to run through a registration process. You either request a new number or ask to have your existing number ported (porting availability depends on where you are, takes up to 60 days, and has a $10 surcharge attached); then you input the information necessary to make e911 work (so that emergency services know where you're calling from). The process should force you off the couch for 60 seconds or so, but that's it: no phone configuration, no Internet router tweaks. Low-tech folks who just want a cheap phone can just plug a regular analog phone into the magicJack's RJ-11 port and start dialing.

Those who want a little more will find a fairly impressive array of features in the magicJack software, including caller ID, call waiting, call forwarding, and voice mail that will respond even if you're not online. The software supplies a softphone that works through a headset and microphone connected to your PC. Compared with business VoIP, this might be a light feature set, but for home users it's plenty.

Your PC plays a significant part in the service—as in no calls without one. That made me balk at first, thinking that a PC had to be on constantly to make this work. But while technically that's true, the magicJack's ability to pick up voice mail even while you're offline means that your PC can be off while you're at work or away, since you wouldn't be there to answer phone calls anyway. And, as with any VoIP service, magicJack doesn't care where you're connecting to the Internet as long as the service is broadband. So if your software is installed on a notebook, you can take your home phone with you. And YMax says that in the near future a firmware upgrade will use remote wake-up (a feature that most motherboards support these days) to power up your PC when a call comes in.

MagicJack's call quality is amazing—almost too good to be true. YMax reps say they can deliver such great sound because they built the operation as a straight phone company rather than an Internet voice provider. YMax worked to become the only such company certified in all 50 states, which, its reps claim, allows it more gateways linking the Internet and the telcos than any other voice provider has. That means it maintains control of calls much longer than a regular VoIP provider, which in turn translates into high call quality. I have no way of verifying the company's infrastructure claims, but the voice quality speaks for itself.

What worried me is that this network sounds expensive, yet YMax is charging so little. That's how SunRocket got killed. Then again, magicJack customer base was growing at 30 percent a week while the product was still in beta, according to the company, so maybe I'm worried about nothing. And after all, should the service go belly up, you still have alternatives: It's not as if the telecom robber barons will disappear. Bottom line: The magicJack is the coolest little home VoIP gadget I've seen to date, and for less than $40, everybody should try it.

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